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Rebecca A. Bellas
(Type or print name of person mailing paper)

Date: March 10, 2006 Rebecca A. Bellas
(Signature of person mailing paper)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bokisa, et al.	:	Art Unit:	1753
Serial No.:	10/772,595	:	Examiner:	Edna Wong
Filed:	February 5, 2004	:		

Title: ELECTROPLATED QUATERNARY ALLOYS

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This paper is responsive to the Final Office Action dated October 13, 2005 and the Advisory Action dated March 1, 2006. This paper accompanies a Notice of Appeal.

REMARKS

Claims 1-13 and 15-26 are pending in the application. Favorable reconsideration in light of the remarks which follow is respectfully requested.

The Invention

Before distinguishing the cited art, a brief overview of the invention is in order. The invention relates to making high quality quaternary Ni-Co alloys using a bath containing nickel

ions, cobalt ions, at least two ionic alloy metals, and an acetylenic brightener. Novelty is not disputed. The high quality Ni-Co alloys are achievable due to the presence of the acetylenic brightener. This is because the presence of an acetylenic brightener causes the uniform placement of the at least two ionic alloy metals within the matrix of a Ni-Co base alloy. This action is not easy since the four metals plate at different rates depending upon conditions such as temperature, concentration, pH, current, and the like. A more attractive quaternary alloy results because the four metals plate with substantially uniform distribution within the alloy.

The Obviousness Rejection Involving Independent Claim 1

Claims 1-6, 8, and 24 stand rejected under §103(a) over JP 10-245693 (JP '693) in view of Passal. JP '693 relates to forming a nickel alloy with good adhesion on an insulator by plating a nickel and one or more of boron, cobalt, copper, iron, manganese, phosphorus, tin, and zinc with a specific brightener. JP '693 solves the problem of plating nickel alloys to insulators by requiring a N-heterocyclic quaternary ammonium salt as a brightener for the purpose of making an effective nickel alloy deposit. JP '693 explicitly warns that deposit conditions change greatly with the class of brightener.

Passal relates to a process for electroplating Ni, Co, or Ni-Co binary alloys. The Examiner nevertheless contends that Passal teaches the deposition of a quaternary alloy. Passal uses a primary brightener (numerous brighteners listed including acetylenics), a secondary brightener, and an organic hydroxy-sulfonate adduct to improve tolerance to metallic impurities.

The Examiner contends that it would have been obvious to modify the method of JP '693 by using one of the brighteners of Passal. However, the Examiner has failed to establish a *prima facie* case of obviousness for at least four reasons.

1) There Is No Motivation to Contravene the Teachings of JP '693

One skilled in the art would NOT have replaced the brightener of JP '693 with the acetylenic brightener of Passal because this would FRUSTRATE the purpose and teachings of JP '693. The purpose of the primary reference JP '693 is to provide Ni alloys that effectively bond

to insulators. The problem addressed by JP '693 is the inability to plate Ni alloys on insulator substrates. JP '693 solves the problem of electroplating nickel alloys to insulators by requiring a N-heterocyclic quaternary ammonium salt as a brightener for the specific purpose of making an effective nickel alloy deposit. JP '693 is unconcerned with the appearance of the resultant nickel alloy, as there is no mention of any desire for an attractive plate.

In the metal plating arts, having a matte or grainy surface means that the metal plate has a larger surface area and thus a greater ability to bond to a given substrate. Since the main purpose of JP '693 is to improve the bonding of Ni alloys to an insulator, one skilled in the art would not have modified JP '693 by using a compound such as a brightener that would DECREASE the resultant Ni alloys ability to bond to an insulator by increasing its matte or grainy surface. In other words, one skilled in the art would NOT have frustrated the purpose of JP '693 by including an additive that would impede the bonding between its plated alloy and substrate.

Moreover, JP '693 explicitly warns that deposit conditions change greatly with the class of brightener. And the invention of JP '693 is predicated on the discovery of a specific brightener that provides Ni alloys securely plated on an insulator. As a result, one skilled in the art would not ignore the clear objectives of JP '693 and change one of its fundamental elements. Changing the brightener in JP '693 would undermine and vitiate the basic teachings of JP '693, and render its disclosed discovery impotent.

Passal Says Nothing Specifically of Acetylenic Brighteners

Second, one skilled in the art would NOT have replaced the quaternary ammonium salt brightener of JP '693 with the acetylenic brightener of Passal because there is NO teaching or suggestion in Passal indicating that its acetylenic brighteners would be effective for improving the appearance of quaternary alloys. That is, there is NO teaching or suggestion in Passal indicating that its acetylenic brighteners cause the uniform placement of additional alloy metals within the matrix of a Ni-Co alloy.

In order to support the Examiner's combination, the Examiner cites functions (1) to (4) of Column 3 of Passal attributable to the primary brighteners, secondary brighteners, and secondary

auxiliary brighteners. However, this contention is based only on impermissible hindsight, made with the guidance of the instant specification.

The beneficial functions (1) to (4) on page 9 of the Office Action are general desirable effects, and Passal indicates that these desirable effects are provided by the listed primary brighteners, the listed secondary brighteners, and the listed secondary auxiliary brighteners. However, Passal does NOT teach or suggest which specific beneficial functions (1) to (4) are enabled by the specifically listed primary brighteners, secondary brighteners, and secondary auxiliary brighteners. Moreover, Passal does NOT teach or suggest which specific beneficial functions (1) to (4) are provided by acetylenic brighteners.

In this connection, Passal describes four generic groups and ten specific compounds of primary brighteners, four generic groups and five specific compounds of secondary brighteners, and twelve generic groups and seven specific compounds of auxiliary secondary brighteners. One skilled in the art would be hard-pressed to determine which of four beneficial functions are associated with each of the 20 generic groups and 22 specific compounds of brighteners listed. In fact, if even possible, unreasonable and burdensome experimentation would be required to determine such.

In the absence of a specific teaching regarding the ability of acetylenic brighteners to improve the appearance of quaternary alloys, one skilled in the art would NOT have replaced the quaternary ammonium salt brightener of JP '693 with the acetylenic brightener of Passal based on Passal's teachings.

Ammonium Salt Brighteners and Acetylenic Brighteners Are Not Equivalent

Third, one skilled in the art would NOT have replaced the quaternary ammonium salt brightener of JP '693 with the acetylenic brightener of Passal because of resultant changes in bath conductivity that would impact plating efficiency. Acetylenic brighteners and quaternary ammonium salt brighteners are different and not equivalent. For example, one difference is the different impacts they have on bath conductivity. JP '693 employs quaternary ammonium salt brighteners, which are ionic brighteners. Since the salt brighteners of JP '693 contribute to the

conductivity of its electroplating bath, one skilled in the art would NOT change the conductivity of JP '693 electroplating bath by substituting an acetylenic brightener for its quaternary ammonium salt brighteners.

Cited Art Does Not Disclose All Claim Features

And fourth, even if combined, neither JP '693 nor Passal teach or suggest quaternary Ni-Co alloys. While JP '693 generically mentions nickel alloys containing one or more of boron, cobalt, copper, iron, manganese, phosphorus, tin, and zinc, JP '693 fails to teach or suggest any quaternary alloys including quaternary Ni-Co alloys.

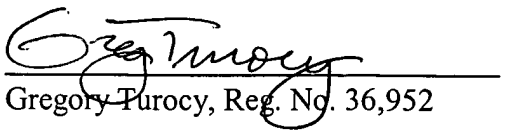
Passal only describes Ni-Co binary alloys. The Examiner contends that Passal describes quaternary alloys. There is no reasonable basis for the Examiner's contention. One of the primary teachings of Passal is the lack of plating or voids in the resultant plate caused by impurities. While Passal in Column 1 mentions metallic impurities in a plating bath, Passal does NOT mention quaternary Ni-Co alloys. In the instance where a bronze substrate is plated, the organic hydroxy-sulfonate adduct PREVENTS metallic impurities from plating.

Since neither JP '693 nor Passal teach or suggest quaternary Ni-Co alloys, JP '693 and Passal even if combined fail to teach or suggest all features of the claims.

The remaining claims not specifically discussed are patentable for substantially the same reasons that claim 1 is not obvious over JP '693 and Passal (one skilled in the art would not have modified JP '693 with an acetylenic brightener of Passal).

Respectfully submitted,

AMIN & TUROCY, LLP



Gregory Turocy, Reg. No. 36,952

24th Floor, National City Center
1900 East 9th Street
Cleveland, Ohio 44114
(216) 696-8730
Fax (216) 696-8731